Influenza 1969-1970

Incidence in general practice based on a population survey

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THE true incidence of influenza during an epidemic is probably impossible to assess. Certainly, obtaining virological and serological proof of infection in all members of a sample population is out of the question. The epidemiological features of influenza epidemics over 20 years, based on patient consultation rates, have been well described, (Fry 1969). Fry expressed the view 'that probably twice as many patients as consulted were infected', an opinion supported by the present survey. In Fry's series the diagnosis of epidemic influenza was made only when there was clear evidence of national or local epidemics during which virological confirmation was available.

The following is a description of the pattern of the influenza outbreak experienced in a general practice during the winter of 1969–1970, when there was a known epidemic due to influenza A2 1968 (Hong Kong), nationally.

In addition to collecting data based on patient consultations, a sample of the practice was interviewed after the epidemic to determine, if possible, the probable true incidence of clinical influenza.

Method

The practice is urban with a population of approximately 5,800 patients. Continuous morbidity recording is carried out using the disease classification of the Royal College of General Practitioners and an age–sex register is kept. From the age–sex register a random sample, evenly distributed for age and sex, was extracted, yielding 564 names. Each patient or a close relative, *e.g.* parent, was interviewed by a doctor or health visitor. The interview was based on a short questionnaire, (Appendix I) designed to determine whether the patient fell into one of three categories: (1) Probable influenza, (2) doubtful influenza, (3) no influenza. In those with 'probable influenza' it was determined what symptoms they had had; the length and severity of their illness; whether they saw their general practitioner or not, and whether they required medical certification. The questionnaires of the 'probable influenza' group who claimed to have seen their doctor were checked against their medical records and the morbidity index.

Results

These cover the eight week period from 26 November 1969 to 20 January 1970.

Figure I shows the total weekly incidence of cases seen and diagnosed as having either 'influenza' or 'febrile common cold and influenza-like-illness'. The diagnosis of influenza is made with greater certainty when the existence of an outbreak or epidemic is established; in the absence of an established epidemic there is a tendency to code cases less certainly *e.g.* as 'influenzal illness', or as a closely related illness such as acute bronchitis or bronchopneumonia, with the possibility of an influenzal aetiology being overlooked. This tendency to over diagnose 'influenzal illness' and under diagnose

'influenza' early in an epidemic is illustrated in figure I.

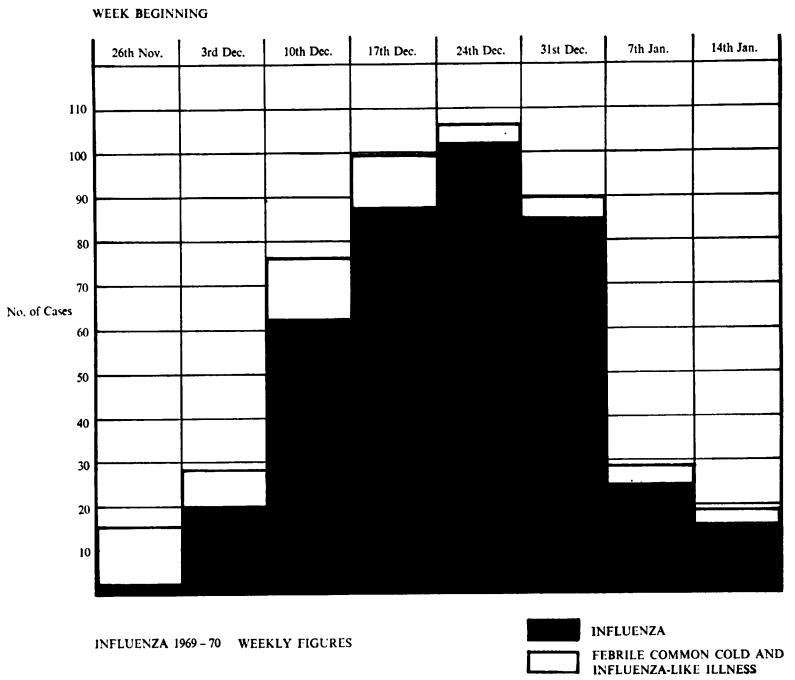

Figure 1.
The incidence of influenza and influenza-like illness week by week.

Incidence

Based on consultation rates

The consultation rates for both 'influenza' and 'influenza' plus 'febrile common cold and influenza-like-illness' in November 1969 to January 1970 are shown in tables I and II.

The true consultation rate for influenza lies between the two figures of 6.7 to 8 per 100 at risk (based on practice list size).

Of particular interest in this outbreak is the age distribution. In previous epidemics there has been a tendency for children to be most susceptible; in recent epidemics (1967–68) the elderly were frequently infected (Fry 1969). In this study we found that the old, and the young particularly of school age, were least affected. The adult and middle-aged part of the population bore the brunt of the infection. There was a predominance of consultation by males, probably reflecting the need for certification.

Table III shows the similar age distribution experienced in the minor wave of influenza between 12 February and 8 April 1969. Although barely noticed at the time there were almost half as many patients consulting their doctor during this eight-week period as during the major outbreak at the end of the year.

Based on survey of practice sample

The main findings of this survey are given in tables IV and V. Of the 282 males in the sample, 23 were found to have left the district or to be untraceable. Of the 282 females, eight had left and two were temporarily absent. This suggests a list inflation of 8.5 per cent males, 2.9 per cent females, average 5.6 per cent, but does not allow for patients coming into the practice and not yet listed.

The age–sex incidence of those with influenza in the survey population resembles that

TABLE I

AGE AND SEX INCIDENCE OF INFLUENZA—NOVEMBER 1969—JANUARY 1970

Week beginning	*All cases*	*Male*	*Female*	*0–4 years*	*5–14 years*	*15–44 years*	*45–64 years*	*65+ years*	*D/B not known*
1969 26 November	2	1	1				2		
3 December	20	15	5		1	13	4	1	1
10 December	62	30	32	5	4	27	22	3	1
17 December	87	55	32	5	7	49	20	6	
24 December	101	57	44	5		55	25	15	1
31 December	84	53	31	2	5	41	29	5	2
1970 7 January	24	18	6	1	1	16	3	3	
14 January	15	7	8	2		6	6	1	
TOTALS	395	236	159	20	18	207	111	34	
Rate per 100 at risk	*6.7*			*5.0*	*1.3*	*8.8*	*8.6*	*5.5*	

TABLE II

INFLUENZA AND 'FEBRILE COMMON COLD AND INFLUENZA-LIKE-ILLNESS'—NOVEMBER 1969—JANUARY 1970

	Influenza							
	All cases	*Male*	*Female*	*0–4 years*	*5–14 years*	*15–44 years*	*45–64 years*	*65+ years*
Total	395	236	159	20	18	207	111	34
Rate per 100 at risk ..	*6.7*	*8.0*	*5.5*	*5.0*	*1.3*	*8.8*	*8.6*	*5.5*
Influenza and influenzal illness with febrile common cold								
Total	459	271	187	38	41	224	117	34
Rate per 100 at risk ..	*8.0*	*9.3*	*6.5*	*9.6*	*2.8*	*9.5*	*9.1*	*5.5*

TABLE III

AGE AND SEX INCIDENCE OF INFLUENZA—FEBRUARY 1969–APRIL 1969

	All cases	*Male*	*Female*	*0–4 years*	*5–14 years*	*15–44 years*	*45–64 years*	*65+ years*
Total	189	121	68	2	7	103	66	8
Rate per 100 at risk ..	*3.25*	*4.1*	*2.3*	*0.5*	*0.6*	*4.4*	*5.1*	*1.3*

TABLE IV

ESTIMATED INCIDENCE OF INFLUENZA—NOVEMBER 1969—JANUARY 1970

		0–4 years	*5–14 years*	*15–44 years*	*45–64 years*	*65+ years*	*Not known*	*Totals*	*Per cent*
	No flu ..	14	49	67	42	23			
	Probable flu ..	1	1	25	19	2		48	*17*
Male	Doubtful flu ..	2	7	5	1	1		16	*5.7*
	Untraceable or left	1	2	15	5	0		23	
	Total in sample	18	59	112	67	26		282	
	No flu ..	14	43	73	41	27	1		
	Probable flu ..	2	6	29	17	6		60	*21*
Female	Doubtful flu ..	0	3	6	3	1		13	*4.6*
	Untraceable ..	0	1	7	0	2		10	
	Total in sample	16	53	115	61	36	1	282	
Male and female	Sample ..	34 *3.0*	112 *6.25*	227 *24.0*	128 *28.0*	62 *13.0*	1	564	

TABLE V

COMPARISON OF PROBABLE INFLUENZA CASES SEEING OR NOT SEEING DOCTOR

		0–4 years	*5–14 years*	*15–44 years*	*45–64 years*	*65+ years*	*Totals*	*Percentage of sample*
	Self treated ..		1	11	9		21	*7.5*
Male	Seen by G.P. ..	1		14	10	2	27 *57.5**	*9.6*
	Required certification ..			12	7		19	
	Self treated ..	2	4	19	8	4	37	
Female	Seen by G.P. ..	0	2	10	9	2	23 *38.0**	*8.2*
	Required certification ..			2	4		6	

*Percentage of cases of influenza

of patients who had consulted; again the young adult and middle-aged were seen to be most affected. Forty-eight males, 17 per cent (18.5 per cent when corrected for list inflation), and 60 females, 21 per cent (22 per cent corrected); average 19 per cent, (20.4 per cent corrected) probably had influenza. A further 5 per cent had respiratory infections not typical of influenza. The remainder did not have a clinical illness suggestive of influenza. The epidemic appears to have involved both sexes equally, although

more males than females consulted their doctor (tables I and V).

The survey also provided a check on the accuracy of our routine morbidity recording during a period of increased work-load. Sad to say, we found that there was a significant amount of under-recording of consultations for influenza. The main reasons for this were: Coding of complications, *e.g.* acute bronchitis, pleurisy, pneumonia and failure to code simultaneously the preceding or underlying influenza; seeing more than the expected number of a family whilst visiting and forgetting to record this later; secretarial failures in coding or recording in the morbidity index. These explain fairly well the higher figure of 8.9 per cent for the influenza consultation rate in the sample.

Complications

Respiratory complications, mainly acute bronchitis and segmental pneumonias, were a feature of the epidemic; approximately 30 per cent of patients seen were considered to have respiratory complications. Severe acute bronchitis with airways obstruction presented in quite a few patients with no previous history of chest disease. The high incidence may be related to the fact that the middle-aged were in particular attacked during this epidemic (figure 2).

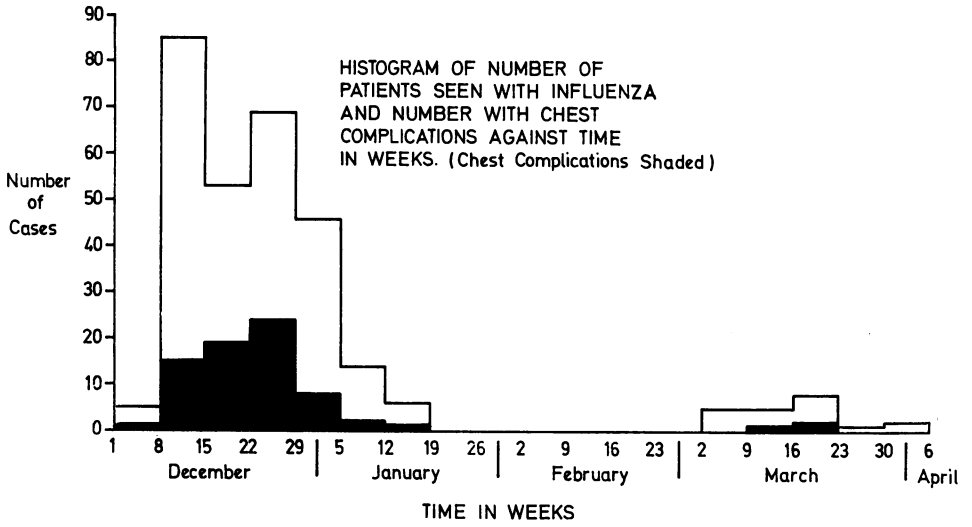

Figure 2.
Chest complications.

Psychiatric illness

Following an observation by practice secretarial staff that we were seeing less anxiety states and depressive illnesses during the outbreak than usual, the figures for new cases of psychiatric illness were compared with those for similar periods in previous years. They were found to be no different. The impression was probably the result of a dilution effect by the large number of cases of influenza.

Summary

The features of an outbreak of influenza in a general practice are described. About one-fifth of the patients in the practice probably had influenza during the eight-week period 26 November 1969 to 20 January 1970. Of patients with influenza only 46 per cent consulted their family doctor, with a much higher consultation rate for males probably related to the need for certification.

Schoolchildren were relatively little affected, the main brunt of the outbreak being

borne by the young adult and middle-aged population.

The age-sex incidence was comparable in both a sample group and in those consulting their doctor.

There was a high incidence of respiratory complications, approximately 30 per cent.

Acknowledgements

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The study would not have been possible without the hard work of the practice staff, Mrs E. Benson, Mrs E. Bunker, Mrs M. R. Flasby, Mrs M. Hanks and Mrs J. Moyes, S.R.N., O.T.N.

REFERENCE

Fry, J. (1969). Epidemic influenza. *Journal of the Royal College of General Practitioners*, **17**, 100.

APPENDIX I

INFLUENZA SURVEY 1969–1970

NAME: D/B:

ADDRESS: SEX:

OCCUPATION:

INFLUENZA?	YES	DOUBTFUL		NO
POSITIVE INFLUENZA SEEN BY G.P.			YES	NO
For certification			YES	NO
Because ill			YES	NO
SYMPTOMS				
Fever	Headache	Sore cough	Stuffy nose	Other

LENGTH OF TIME ILL DAYS IN BED

LENGTH OF TIME OFF WORK

COMPLICATIONS:

Inquiry into administrative activities in general practice. M. DRURY, M.R.C.G.P. and E. V. KUENSSBERG, *C.B.E.*, F.R.C.G.P. *British Medical Journal.* 1970. **4**, 42.

A survey, using a questionnaire, was conducted by the Royal College of General Practitioners and the Association of Medical Secretaries in 140 practices selected for their interest in practice organization. "The most striking finding was the large variation between staffing structures and methods of working in apparently similar practices. There was no uniformity of job description, staff classification, or delegation of administration". It was estimated that at least 32 staff-hours per doctor were necessary, and that full-time staff were preferable to part-time although there were difficulties in providing all-day cover using only full-time staff. Most doctors would prefer to have their staff trained before appointment.